

Does vitamin D deficiency increase the severity of COVID-19?

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Abstract

The severity of coronavirus 2019 infection (COVID-19) is determined by the presence of pneumonia, severe acute respiratory distress syndrome (SARS-CoV-2), myocarditis, microvascular thrombosis and/or cytokine storms, all of which involve underlying inflammation. A principal defence against uncontrolled inflammation, and against viral infection in general, is provided by T regulatory lymphocytes (Tregs). Treg levels have been reported to be low in many COVID-19 patients and can be increased by vitamin D supplementation. Low vitamin D levels have been associated with an increase in inflammatory cytokines and a significantly increased risk of pneumonia and viral upper respiratory tract infections. Vitamin D deficiency is associated with an increase in thrombotic episodes, which are frequently observed in COVID-19. Vitamin D deficiency has been found to occur more frequently in patients with obesity and diabetes. These conditions are reported to carry a higher mortality in COVID-19. If vitamin D does in fact reduce the severity of COVID-19 in regard to pneumonia/ARDS, inflammation, inflammatory cytokines and thrombosis, it is our opinion that supplements would offer a relatively easy option to decrease the impact of the pandemic.

Keywords: COVID 19; Treg; Vitamin D; coronavirus; inflammation.

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